

Paper Reference 20158K
Pearson BTEC
Level 3 Nationals Diploma,
Extended Diploma

INFORMATION TECHNOLOGY
UNIT 11: CYBER SECURITY AND
INCIDENT MANAGEMENT

(PART A)

Window for supervised period:

Monday 29 April 2019 – Friday 17 May 2019

**Supervised hours: 5 hours (plus your additional
time allowance)**

SET TASK BRIEF

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PROJET SERENDIPITY

Projet Serendipity (PS) is an organisation that tries to make links between PhD students.

It started when Professor Fred Gorse, an expert in artificial intelligence, met Professeur Adele Lefebvre, who studies complex data processing. Each had developed some computing techniques that the other might find useful in their own work.

Adele thought it might make an interesting PhD project to try and link up areas of research where the people involved would not normally meet. Adele and Fred then started a joint project between their universities.

The first students produced some interesting results and the project expanded as more university departments heard about it. The project eventually involved PhD students from over 20 universities around the world.

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Turn over

In 2018, Fred and Adele decided that the administration of the project was too complicated. They decided that PS should become an independent, non – profit organisation. PS would still get PhD students from universities and would be funded by grants and subscriptions.

The Pan – Europe Foundation for Education Research (PEFER), based in Lille, France, agreed to house PS in a row of four rooms on the second floor of its premises, as shown in **Figure 1** in the separate Data Booklet. PS will have meeting rooms and workspace but most PhD students will work from home, accessing the servers and data stores remotely.

Fred and Adele are joint Chief Executives of the new PS board of directors. Other members were elected from the present students and their supervisors.

Fred and Adele provide oversight and continuity, other board members deal with the day – to – day running of PS and its research programme. A PhD typically takes three to four years to complete, so a high turnover of board members is expected. The board will only meet a few times a year.

PS does not have much money, so most of the hardware that will be used to form the PS network in Lille is second – hand, as shown in Figure 2 in the separate Data Booklet. This hardware is high quality but quite old.

PS has been given:

- **A Cisco 7200 router, enterprise level, but out of support from Cisco.**
- **A NETGEAR ProSAFE WAC730. A wireless access point (WAP) for small and medium – sized enterprises. It uses 802.11ac and will easily cover the PS area providing 100mbp/s. Five years old, it had a lifetime guarantee but this did not transfer to PS.**
- **Three PCs running Linux. Dating from 2015, these were good quality business PCs when new.**
- **Three HP BL660c Gen 8 blade servers with mountings, dating from 2014. Each server has 48 cores and is described as ideal for virtualisation, database, and business processing. They have the latest LINUX Enterprise OS. All drivers are up to date.**

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Turn over

- **A Seagate 4 – Bay Network Attached Storage (NAS) unit with four, 5TB removable drives. It is being used by the existing project and contains copies of all the files and data stores. It is currently in Fred’s department at his university.**
- **A networked laser printer and a networked scanner. These are suitable for small office use and only a year old.**

Fred and Adele are experts in their own subjects but are inexperienced with cyber security. They decided that someone not in PS should advise them. You have been hired for the task.

At a meeting with Fred and Adele, PEFER’s security is explained. The main entrance has a security barrier and is the only unlocked entrance. Guards are on duty from 0700 – 1900 on weekdays, at other times the building is locked. PEFER’s business hours are 0900 – 1700 Monday to Friday.

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Security staff open the building at 0700, tour the building, put on lights and unlock rooms. The rooms have simple mortice locks. Rooms are usually left unlocked during the day. Service staff lock the rooms each evening when they finish cleaning. Ground floor doors and windows are alarmed when PEFER is closed.

The building is in a low-crime area and PEFER's directors do not want to change current security measures.

Figure 1 shows PS's part of the building.

Figure 2 shows the proposed layout of the PS network.

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DEVELOPMENT PLAN

During the meeting with Fred and Adele you establish that:

- 1. The network will follow the network diagram.**
- 2. PEFER will manage the building's security but Adele is concerned about physical security within PS's area.**
- 3. Fred is concerned about clashes between PS's WiFi and PEFER's WiFi.**
- 4. One of the three blade servers will be used for the roles of admin, web and mail server.
The other two will be used to host virtual machines for students' projects.**
- 5. The three PCs must be able to connect to the virtual machines. Only the PC in the admin office should be able to connect to the admin server.**
- 6. Anyone requiring a laptop, tablet or other mobile device must bring their own and connect via WiFi.**
- 7. The WiFi must connect mobile devices to the virtual machines but not the admin server.**

8. The NAS is configured as RAID 1. A weekly backup is currently made to storage in Adele's university.
 9. PS's students and staff are located around the world, so remote access must be available 24 / 7.
 10. PEFER's IT staff will be available during PEFER's office hours. Remote support methods will be used at other times.
 11. All documentation will be available in English and French.
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